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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,567	03/21/2007	Brigitta Otto	041165-9103-00	6229

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EXAMINER	
TISCHLER, FRANCES	
ART UNIT	PAPER NUMBER
1796	
MAIL DATE	DELIVERY MODE
02/17/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/591,567	OTTO ET AL.	
	Examiner	Art Unit	
	FRANCES TISCHLER	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 October 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *9/1/06* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :9/1/06, 2/28/07, 8/2/07, 9/27/07,4/23/08, 10/24/08.

DETAILED ACTION

Drawings

It appears that the PTO file of Figures 1 - 3 has been misplaced. It is requested of Applicant to kindly resubmit said figures when responding to this office action.

It is noted that the drawings appear in the published application.

Referring to the published application: the drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: zones 3, 4 and 5 referenced on page 6 and page 7 are not shown in Figures 1 and 2, respectively.

The drawings are also objected to because (1) all reference numbers need to be typed, (2) the title of Figure 3 should be in English.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 16 is objected to because of the following informalities: "material (i) flows” should be replaced with “material flows (i)”. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 – 7, 10 – 12, 14, 15 and 18 - 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Halek et al (US 4,223,128).

Regarding claims 1 – 4, 6, 18: Halek discloses (abstract, 6:33 – 43, 8:48 – 61, 10:5 – 8 and 47 - 48) a process for producing polyesters comprising crystallizing the polyester in the presence of a gas, such as air or nitrogen, with a dew point of less than about -30^{o}C, typically from -30 to -100^{o}C, preferably from -40 to -80^{o}C. Applicant claims a dew point of less or equal to approximately -10^{o}C and discloses the range extends

from -10°C to -85°C. Therefore, Halek's dew point range of -30°C to -100°C teaches a range that substantially overlaps the instantly claimed ranges thereby disclosing sufficient specificity.

Halek discloses that the intrinsic viscosity will decrease with a higher dew point reading on Applicant's claim that the dew point of the gas is set in dependence of the desired rise in IV in claim 6.

The polyester is used to make bottles, sheets, etc., reading on claim 18.

Regarding claim 5: the intrinsic viscosity (IV) is disclosed to increase from 0.64 before crystallization to 0.64 after the first crystallization to 0.74 after the second crystallization/stabilization (11:52 – 60, 12:30 – 35, Tables I and II), reading on Applicant's increase of 0 to 0.11 dL/g.

Regarding claims 7, 10 - 12, 14 and 15: Crystallization is done in two stages: a crystallization step and a stabilization step (5:32 – 39). A first crystallization step is done at temperatures of 110°C – 240°C in a fluidized or stirred bed (5:28 – 48 and 63 - 65). The second crystallization step/stabilizing step is carried out at temperatures of 180 – 220°C.

The polyester formed may be used to produce bottles, sheets, etc. (10:5 – 8 and 47 - 48), which implicitly discloses that no solid state polymerization is performed reading on Applicant's claims 19 and 20.

Claims 1, 3 – 5, 7, 10 – 12 and 14 - 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Otto et al (WO 03046045, using US 7,262,263 as translation).

Regarding claims 1, 3, 4 and 18: Otto discloses (abstract, 3:42 - 58, 4:27 – 28, 7:8 - 23) a method for producing polyesters comprising crystallizing the polyester in the presence of air or nitrogen gas, and preferably nitrogen gas, with a dew point of 20°C to -50°C, said polyesters are used in making bottles, sheets, films and filaments without going through solid state polymerization, reading on Applicant's claims.

Applicant claims a dew point of less or equal to approximately -10°C and discloses the range extends from -10°C to -85°C. Therefore, Otto's dew point range of 20°C to -50°C teaches a range that substantially overlaps the instantly claimed ranges thereby disclosing sufficient specificity.

Regarding claims 5: Otto discloses in Tables 1.2, 2.1 and 2.2 spherical chips with IV of 0.602, 0.804 and 0.795, respectively, and IV of 0.636, 0.812 and 0.827 after crystallization, respectively, reading on Applicant's rise in IV of approximately 0 – 0.11 dL/g.

Regarding claims 7, 10 – 12, 14 - 17: The crystallization is carried out in two stages: in the first stage, crystallization is carried out under vortexing by way of a gas flow in a fluidized bed reactor with mixing properties and controlled granular flow at temperatures of 170 – 210°C (2:64 – end, 3:1 – 6 and 27 – 58), reading on Applicant's turbulence and temperatures of 150 – 210°C. During the second crystallization stage, the polyester flows (i) under mechanical disturbance and the gas is in countercurrent flow, (ii) under mechanical disturbance and the gas is in concurrent flow, and (iii) without mechanical disturbance and the gas is in concurrent flow, at temperatures of 190 –

220°C (3:1 – 6, 4:19 – 32), reading on Applicant's claims and temperatures of 180 – 230°C. The second crystallization stage is carried out in a shaft crystallizer (4:37 - 40).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 8, 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halek et al (US 4,223,128).

Halek's disclosure is discussed above and is incorporated herein by reference.

Halek is silent as to increasing the temperature by up to 20°C. However, Halek discloses a range of possible temperatures and, additionally, said temperatures need to be increased in going from the first to the second stage of crystallization. It would have been obvious to one of ordinary skill in the art to have raised the temperature of the first

and second crystallization stages through routine experimentation to arrive at the optimal crystallized product for its intended use.

The time for the first crystallization step ranges from 4 – 40 minute (5:66 – 68), reading on Applicant's claim of up to 2 hours. The time for the second crystallization step/stabilization step ranges from 6 - 12 hours (7:9 – 11), where the lower range reads on Applicant's claim of up to 8 hours. Both steps together read on Applicant's total time of approximately 10 hours. Halek also discloses that said times and temperatures will vary depending if pure PET is used or if it contains modifying or chain branching agents (7:11 – 15). Therefore, it would also have been obvious to one of ordinary skill in the art to have varied the crystallization time according to the PET present and the amount of crystallization desired.

Claims 8, 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otto et al (WO 03046045, using US 7,262,263 as translation).

Otto's disclosure is discussed above and is incorporated herein by reference.

Regarding claim 8: Applicant claims the crystallization is continuously increased by up to approx. 20°C. Otto discloses (3:55 – 58) that the granulate is crystallized at rising temperatures of 170 – 210°C, reading on Applicant's continual rise in temperature. Otto, however, does not explicitly disclose that the increase is up to 20°C. However, it would have been obvious to one of ordinary skill in the art to have stopped said increase at the desired temperature to achieve the desired crystallization and intrinsic viscosity. For instance, table 1.2 discloses a first crystallization at 200°C

followed by a second crystallization at 215°C, giving an increase of 15°C, reading on Applicant's amount of up to 20°C.

Regarding claims 9 and 13: The first stage crystallization is carried out for 30 minutes and the second stage for 60 minutes in step (i), 60 minutes in step (ii) and 180 minutes in step (iii) and a total residence time of 100 – 350 minutes (3:39 – 41, 4:33 – 36, 5:59 - 64), which reads on Applicant's claims of a total of up to 10 hours, first stage of up to 2 hours and second stage of up to 8 hours. Additionally, it would have been obvious to one of ordinary skill in the art to have increased or decreased the crystallization time to increase or decrease the intrinsic viscosity of the polyester, respectively, for the desired results.

Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halek et al (US 4,223,128) in view of Otto et al (WO 03046045, using US 7,262,263 as translation) in view of

Otto's and Halek's disclosure is discussed above and is incorporated herein by reference.

Halek discloses (6:44 – 57, 8:62 – end, 9:1 – 14) a crystallization reactor with a rotating central shaft for either the first or second crystallization steps, reading on Applicant's mechanical disturbance and shaft, but fails to teach the direction of the gas flow in three steps of second stage crystallization.

It would have been obvious to one of ordinary skill in the art to have substituted Halek's reactor with Otto's reactor in the second stage of crystallization with the

accompanying three steps of mechanical disturbance and gas flow direction since both inventions are crystallizing PET in the presence of a gas with low dew points for the same purpose of crystallizing PET that is to be used for the production of bottles.

Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otto et al (WO 03046045, using US 7,262,263 as translation) in view of Halek et al (US 4,223,128).

Otto's and Halek's disclosure is discussed above and is incorporated herein by reference.

Halek discloses (abstract, 8:48 – 61) a process for producing polyesters comprising crystallizing the polyester in the presence of a gas with a dew point of less than about -30°C, typically from -30 to -100°C, preferably from -40 to -80°C. Halek further discloses that the intrinsic viscosity will decrease with a higher dew point.

Otto discloses the use of a gas, with a dew point of 20 to -50°C, but fails to disclose a range that reaches -85°C and does not expressly disclose setting the dew point in terms of the desired rise in IV. Since Otto discloses a range of dew points and Halek teaches that changing the dew points will change the IV of the polymer, it would have been obvious to one of ordinary skill in the art to have further decreased Otto's dew point of the gas to achieve an increase in IV if such an increase is desired. Additionally, the mere fact that Otto did not expressly set the dew points in dependence to the desired IV does not change the fact that she discloses a range of dew points and a range of viscosities (3:57, 6:4 – 19).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANCES TISCHLER whose telephone number is (571)270-5458. The examiner can normally be reached on Monday-Friday 7:30AM - 5:00 PM; off every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jim Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Irina S. Zemel/
Primary Examiner, Art Unit 1796

Frances Tischler
Examiner
Art Unit 1796

/FT/